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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,599	07/28/2000	Ian R. Finlay	12780-1015	3713

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EXAMINER	
LY, ANH	
ART UNIT	PAPER NUMBER
2172	16

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Please find below and/or attached an Office communication concerning this application or proceeding.

Y

Office Action Summary	**Application No.** 09/628,599	**Applicant(s)** FINLAY ET AL.	
	Examiner Anh Ly	**Art Unit** 2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2004*.

2a)☒ This action is **FINAL**. 2b)□ This action is non-final.

3)□ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)□ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)□ Claim(s) _____ is/are objected to.

8)□ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)□ The specification is objected to by the Examiner.

10)□ The drawing(s) filed on _____ is/are: a)□ accepted or b)□ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)□ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)□ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)□ All b)□ Some * c)□ None of:

1.□ Certified copies of the priority documents have been received.

2.□ Certified copies of the priority documents have been received in Application No. _____.

3.□ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) □ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) □ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) □ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) □ Notice of Informal Patent Application (PTO-152)

6) □ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 02/13/2004 have been fully considered but they are not persuasive.

Applicants argued that, "Edwards does not have the quoted language ... from the claim 1 of the invention, with Edwards reference column and line numbers added in brackets." (Page 2, the 3rd and the 4th paragraph).

Edwards et al. of 6,438,536 (hereinafter Edwards) teaches executable function performing by lover component layers and during processing of generating code for a specific SQL query, the code generation component layer inserts calls to the difference performance enhancing subroutines in place of normally included calls to lower component layer. Subroutines pass pointers to the generation code for retrieval information to get the results and a pointer to where the result should be returned to the function (see col. 7, lines 60-67 and col. 8, lines 30-38; also see abstract).

Applicants argued that, Edwards does not have any and all elements ... It does not include pointers to functions." (Page 4, the last paragraph).

Edwards teaches pointers of functions where receive the returned result values of the calling or passing from the subroutines (col. 8, lines 28-48).

Applicants argued that, "Levine teaches away from the present invention and it does not explicitly teaches a direct call mechanism replacing a lookup function of a run-time interpreter." (Page 7, the 3rd paragraph).

Levine of 6,105,033 teaches The director component contains routines that generate calls for searching or looking up the information if the codes for those statements are found or for deleting the code segment (col. 6, lines 12-26, col. 7, lines 1-30, and col. 8, lines 20-62; also see col. 14, lines 30-52).

Thus, Applicants' arguments are not persuasive with the record of prior art.

2. Claims 1-22 are pending in this application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,438,536 issued to Edwards et al. (hereinafter Edwards) in view of US Patent No. 6,105,033 issued to Levine.

With respect to claim 1, Edwards discloses determining from the access plan an executable function associated with a first operation code (see fig. 2B, the access plan is determined by the processing of optimizer component via execution functions associated with SQL statements as operation codes, which are generated by code generation component: col. 5, lines 32-64).

augmenting said first operation code in the access plan with a pointer to said executable function (the value of pointers in the operation code as a augment or parameter of a call function or subroutine, which is generated from SQL query code generation component or RAM CODEGEN executor: col. 4, lines 66-67 and col. 5, lines 1-10 and lines 40-56; also see col. 7, lines 60-67 and col. 8, lines 28-48; also see abstract).

Edwards discloses a query optimizer, Ram CODEGEN executor and code generation component for generating an access plan associated with the search queries entered by user and execution function such as call functions or call subroutines associated with SQL statements being as operation codes. Edwards does not explicitly teach a direct call mechanism replacing a lookup function of a run-time interpreter.

However, Levine discloses code generation, from which operation codes are generated is having call functions routines, which are interpreted as a pointer to a generated code segment (col. 8, lines 20-62; also see col. 6, lines 12-26, col. 7, lines 1-30 and col. 14, lines 30-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Edwards with the teachings of Levine so as to obtain a call function for being interpreted in the execution time (Levine - col. 8, lines 15-19). This combination would have made the method for having code generation component to generate call function routines (Levine – col. 8, lines 38-52) associated with execution functions and SQL statements (Levine - col. 3, lines 7-25) and during process of generating code for a specific SQL query, the code generation component produce calls to the difference performance enhancing into the generation code and this is easy to implement without having to make changes to the other components or layers of the relational database manager (Edwards – col. 45-67 and col. 3, lines 1-18).

With respect to claim 2, Edwards discloses the remaining operation codes in the access plan (col. 5, lines 1-5 and lines 40-56; ; also see col. 2, lines 3-15).

With respect to claims 3-4, Edwards discloses a method for pre-processing an access plan as discussed in claim 1.

Edwards discloses a query optimizer, Ram CODEGEN executor and code generation component for generating an access plan associated with the search queries entered by user and execution function such as call functions or call subroutines associated with SQL statements being as operation codes. Edwards does not explicitly teach a data structure for storing a pointer to said execution function and storing information associated with said executable function.

However, Levine discloses a data structure that contains the pointers to the code segment (col. 8, lines 15-19, and lines 65-67 and col. 9, lines 1-12) and executable functions (col. 8, lines 40-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Edwards with the teachings of Levine so as to obtain a data structure for pointers for allowing a process to indirectly reference locations within another data segment through pointers contained within the linkage segment (Levine – col. 9, lines 1-50, a call function for being interpreted in the execution time (Levine - col. 8, lines 15-19). This combination would have made the method for having code generation component to generate call function routines (Levine – col. 8, lines 38-52) associated with execution functions and SQL statements (Levine - col. 3, lines 7-25) and during process of generating code for a specific SQL query, the code generation component produce calls to the difference performance enhancing into the generation code and this is easy to implement without having to make changes to the other components or layers of the relational database manager (Edwards – col. 45-67 and col. 3, lines 1-18).

With respect to claim 5, Edwards discloses a method for pre-processing an access plan as discussed in claim 1. Edwards discloses augmenting said first operation code in the access plan with a second pointer (the value of pointers in the operation code as a augment or parameter of a call function or subroutine: col. 4, lines 66-67 and col. 5, lines 1-10 and lines 40-56; also see col. 7, lines 60-67 and col. 8, lines 30-38).

Edwards discloses a query optimizer, Ram CODEGEN executor and code generation component for generating an access plan associated with the search queries entered by user and execution function such as call functions or call subroutines associated with SQL statements being as operation codes. Edwards does not explicitly teach a data structure for storing a pointer to said execution function and storing information associated with said executable function.

However, Levine discloses a data structure that contains the pointers to the code segment (col. 8, lines 15-19, and lines 65-67 and col. 9, lines 1-12) and executable functions (col. 8, lines 40-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Edwards with the teachings of Levine so as to obtain a data structure for pointers for allowing a process to indirectly reference locations within another data segment through pointers contained within the linkage segment (Levine – col. 9, lines 1-50, a call function for being interpreted in the execution time (Levine - col. 8, lines 15-19). This combination would have made the method for having code generation component to generate call function routines (Levine – col. 8, lines 38-52) associated with execution functions and SQL statements (Levine - col. 3, lines 7-25) and during process of generating code for a specific SQL query, the code generation component produce calls to the difference performance enhancing into the generation code and this is easy to implement without having to make changes to the other components or layers of the relational database manager (Edwards – col. 45-67 and col. 3, lines 1-18).

With respect to claim 6, Edwards discloses assessing the executable function associated with the first operation code and if applicable, replacing the call to the executable function with a call to a second executable function (col. 5, lines 6-10, col. 6, lines 40-45 and col. 10, lines 1-8).

With respect to claim 7, Edwards discloses intermediate function includes processing operations for the first operation code or the executable function associated with the first operation code (col. 5, lines 5-32 and lines 40-55).

With respect to claims 8-9, Edwards discloses a method for pre-processing an access plan as discussed in claim 1.

Edwards discloses a query optimizer, Ram CODEGEN executor and code generation component for generating an access plan associated with the search queries entered by user and execution function such as call functions or call subroutines associated with SQL statements being as operation codes. Edwards does not explicitly teach gathering statistics on the use of the executable function; and a pause for receiving user input before or after the call to the executable function.

However, Levine discloses a analyzing each SQL statement entered by user for defining the access plan, which will produce the optimum performance for the execution of the statement (user enter queries into the database in order to obtain or extract requested data, and the query optimizer analyzes how best to conduct the users' query of the database in terms of optimum speed in accessing the requested data: col. 5, lines 35-45 and lines col. 1, lines 25-30 and lines 38-45; also see col. 18, lines 28-32)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Edwards with the teachings of Levine so as to obtain a way to analyze the SQL statement, which are entered by user (col. 5, lines 35-45 and col. 6, lines 15-25). This combination would have made the method for having routines for analyzing each query statement (Levine – col. 6, lines 15-26), a code generation component to generate call function routines (Levine – col. 8, lines 38-52) associated with execution functions and SQL statements (Levine - col. 3, lines 7-25) and during process of generating code for a specific SQL query, the code generation component produce calls to the difference performance enhancing into the generation code and this is easy to implement without having to make changes to the other components or layers of the relational database manager (Edwards – col. 45-67 and col. 3, lines 1-18).

Claim 10 is essentially the same as claim 1 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 1 hereinabove.

Claim 11 is essentially the same as claim 2 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 2 hereinabove.

Claim 12 is essentially the same as claim 3 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 3 hereinabove.

Claim 13 is essentially the same as claim 4 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 4 hereinabove.

Claim 14 is essentially the same as claim 5 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 5 hereinabove.

Claim 15 is essentially the same as claim 6 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 6 hereinabove.

Claim 16 is essentially the same as claim 7 except that it is directed to a computer program product rather than a method, and is rejected for the same reason as applied to the claim 7 hereinabove.

Claims 17-18 are essentially the same as claims 8-9 except that they are directed to a computer program product rather than a method, and are rejected for the same reason as applied to the claims 8-9 hereinabove.

Claim 19 is essentially the same as claim 1 except that it is directed to a system rather than a method, and is rejected for the same reason as applied to the claim 1 hereinabove.

With respect to claims 20-21, Edwards discloses a relational database system as discussed in claim 19.

Edwards discloses a query optimizer, Ram CODEGEN executor and code generation component for generating an access plan associated with the search queries entered by user and execution function such as call functions or call subroutines associated with SQL statements being as operation codes. Edwards does not explicitly teach a data structure for storing a pointer to said execution function and storing information associated with said executable function.

However, Levine discloses a data structure that contains the pointers to the code segment (col. 8, lines 15-19, and lines 65-67 and col. 9, lines 1-12) and executable functions (col. 8, lines 40-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Edwards with the teachings of Levine so as to obtain a data structure for pointers for allowing a process to indirectly reference locations within another data segment through pointers contained within the linkage segment (Levine – col. 9, lines 1-50, a call function for being interpreted in the execution time (Levine - col. 8, lines 15-19). This combination would have made the method for having code generation component to generate call function routines (Levine – col. 8, lines 38-52) associated with execution functions and SQL statements (Levine - col. 3, lines 7-25) and during process of generating code for a specific SQL query, the code generation component produce calls to the difference performance enhancing into the generation code and this is easy to implement without having to make changes to the other components or layers of the relational database manager (Edwards – col. 45-67 and col. 3, lines 1-18).

With respect to claim 22, Edwards discloses a method for pre-processing an access plan as discussed in claim 1.

Edwards discloses a query optimizer, Ram CODEGEN executor and code generation component for generating an access plan associated with the search queries entered by user and execution function such as call functions or call subroutines associated with SQL statements being as operation codes. Edwards does not explicitly teach a data structure for storing a pointer to said execution function and storing information associated with said executable function.

However, Levine discloses a data structure that contains the pointers to the code segment (col. 8, lines 15-19, and lines 65-67 and col. 9, lines 1-12) and executable functions (col. 8, lines 40-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Edwards with the teachings of Levine so as to obtain a data structure for pointers for allowing a process to indirectly reference locations within another data segment through pointers contained within the linkage segment (Levine – col. 9, lines 1-50, a call function for being interpreted in the execution time (Levine - col. 8, lines 15-19). This combination would have made the method for having code generation component to generate call function routines (Levine – col: 8, lines 38-52) associated with execution functions and SQL statements (Levine - col. 3, lines 7-25) and during process of generating code for a specific SQL query, the code generation component produce calls to the difference performance enhancing into the generation code and this is easy to implement without having to make changes to the other components or layers of the relational database manager (Edwards – col. 45-67 and col. 3, lines 1-18).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

7. Any inquiry concerning this communication should be directed to Anh Ly whose telephone number is (703) 306-4527 via E-Mail: **ANH.LY@USPTO.GOV**. The examiner can be reached on Monday - Friday from 8:00 AM to 4:00 PM.

If attempts to reach the examiner are unsuccessful, see the examiner's supervisor, John Breene, can be reached on (703) 305-9790.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to: (703) 872-9306 (Central Official Fax Number)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (receptionist).

Inquiries of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

ANH LY
APR. 1st, 2004

JEAN M. CORRIELUS
PRIMARY EXAMINER